

## Fertigation – providing fertiliser application through the irrigation system

Fertigation is the application of dissolved fertilisers to nursery crops through an irrigation system. This process provides the opportunity to:

- manage nutrient availability throughout the production cycle,
- supplement fertiliser supplied in the growing media,
- manipulate plant growth,
- alter the fertiliser program during the growing season,
- correct any nutrient deficiencies.

The irrigation system used to deliver the dissolved fertiliser must not only be efficient, but operating to the upper level of industry best practice to provide an even distribution of water and fertiliser, limiting possible environmental issues associated with system waste water. Well designed drip, bottom watering, and mobile boom irrigation systems are recognised as compatible with the fertigation technique, while overhead sprinkler systems must operate efficiently and effectively and be coupled with a managed wastewater recycling system.

Fertigation places dissolved fertilisers directly into the irrigation and the system requires regular maintenance and careful management to prevent:

- an increase in bacteria, algae and slime,
- undissolved fertiliser in the irrigation system,
- irrigation system blockages,
- corrosion of irrigation components,
- increased nutrient levels in wastewater.

Particular care should be exercised in selecting fertilisers for use with the fertigation technique. The fertiliser products used in fertigation must be readily soluble and of the highest quality (eg. technical grade). There are a range of formulated soluble products available to nurseries, prepared for specific crops or plant growth stages (eg. flowering), however standard fertilisers provide the most cost effective application.

The selection of the correct injection equipment is just as important as the selection of the correct nutrients in a fertigation system. Two common methods of fertiliser injection are pressure differential venturi and pump injection systems.

Pressure differential venturi systems are based on the principle of a pressure differential being created by a valve or regulator creating a reduced pressure, drawing fertiliser solution into the line. These systems are simple to operate, easy to install, require little maintenance, are relatively low cost and can provide relatively accurate control of fertiliser rates.

Pump injection is the most common method of injection of fertiliser into irrigation systems. The pump delivers fertiliser solution from the supply tank directly into the pressurised mainline in a measured dose. Electric injection pumps can be installed to receive an electrical pulse from a water meter to deliver a precise measure of fertiliser. Pump injection systems are simple and effective, relatively easy to install and maintain, suitable for high pressure systems, allow proportional or quantitative fertigation, and can be automated.

Fertigation is a simple but effective management tool for nurseries, but requires a sound knowledge of fertilisers and plant nutrient requirements.

For more information on fertigation see the industry guide 'Managing water in plant nurseries' available from NGIQ

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